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OF INTEREST TO TEACHERS

College Entrance Botany

In *School Science and Mathematics* for February Mr. Franklin T. Jones, of Cleveland, Ohio, opens anew the discussion of high school work for the college boy and for the boy who is not going to college. Some entrance papers (September, 1908) are given and the question is asked, " In what respects would a teacher do differently in preparing students for these examinations than if he were giving them what he considered best in preparing them for life ? " While some claim that the best preparation for life is not accepted by college people as the best preparation for college and that teachers are forced to eliminate the vital part of the various subjects in order to fill college entrance requirements, Mr. Jones pertinently asks : " Are not such assertions more or less preposterous on the face of them ? Are we, as teachers, ready to confess that we cannot do pretty much as we please in shaping the details of our courses, and that, with such freedom, we are therefore (if we accept the judgment of some of our highest educational authorities) really making failures of our chosen work ? Is not our practice and our theory better than it was even ten years ago, and are we not on the up path rather than the down ? It seems . . . that it is about time for us science teachers to champion strongly what we *are* doing, or else as we have almost perfect freedom to do, on our own individual initiative, change to the best thing."

The examination questions given in botany in this particular case are far from indicating a desire to demand preparation along a line that is " far from life ".

Entrance Examination in Botany

Columbia College, September, 1908

NOTE. — Time : Two hours, ten minutes of which will be devoted to an oral examination. The certified notebook on the laboratory work must be submitted at the examination.

1. What structures of the leaf are of advantage in photo-synthesis ? Explain in what way each one is of service.
2. What is the cause and mechanism of the curvature of tendrils ?

3. How is the root protected against injury? How does it absorb materials from the soil? What other functions does it perform?

4. Make a sketch of the important stages in the life of a fern, labeling the various parts.

5. In what respects does the seed of a Monocotyledon usually differ from that of a Dicotyledon?

6. Mention the agencies that promote the distribution of plants, with illustrations of the adaptive features. What factors control the association of plants upon the earth?

7. Give the characteristics of six families of seed plants that you have studied.

Popular Science Monthly for March contains an illustrated article on the influence of radium rays on a few life processes of plants by Professor C. Stuart Gager and a history of botany at St. Louis by Dr. Perley Spaulding.

The April *Popular Science Monthly* is a Darwin number with numerous well-written articles on Darwin, his theories, and his relation to the various sciences; the one dealing directly with botany is by Professor N. L. Britton.

The *Review of Reviews* for April has several illustrated articles of botanical interest: one on soil erosion in the south by W. W. Ashe, a second giving the "truth about dry farming" by C. M. Harger, and a third on saving America's plant food by G. E. Mitchell.

An article on the existence of non-nitrifying soils is to be found in *Science* for March 26. The authors, F. L. Stevens and W. A. Withers, report that 44 per cent. of the samples tested in North Carolina failed to nitrify, thus showing that all soils have not the power to convert organic or ammoniacal nitrogen into nitrate nitrogen, *i. e.*, to nitrify.

Science, for April 16, describes a series of large tanks now being constructed at Cornell University. They are specially designed to help solve the problems related to soil productiveness, such as: effects of the continuous use of large amounts of mineral fertilizers upon the physical and chemical properties of the soil, and upon the bacterial flora and bacterial activity; changes that occur in a series of years when soils gradually deteriorate or improve; effect of different methods of soil treatment upon the loss of lime in the drainage water; loss of potassium and other substances occasioned by manuring with lime; loss of soluble salts caused by clean cultivation; extent to which soils under field conditions are renewed by accession of the lower soil to the plowed surface.

Professor Otis W. Caldwell, of the University of Chicago, has an article on "The Course in Botany" in the January *School Science and Mathematics.* The whole article is well worth reading by all teachers of botany. A suggestive full-year course is suggested for high schools. The principles that, according to Professor Caldwell, should determine the course will be seconded by all. They are: (1) "The materials selected for use in the course should have *appreciable significance* to the students. . . . This appreciable significance may be found in a knowledge of practical use of materials, a general understanding of life problems, appreciation of the aesthetic aspects of plant life, desire for knowledge, or a knowledge of the basis of agriculture or other industrial pursuits. (2) The materials must be of value for general knowledge by the public. There is a general culture value in knowing plant life, and the time has come when knowledge of the activities of plants and the part they perform in modern life is a part of the body of knowledge people must have in order to be properly intelligent as to their environment. (3) The materials of the course should be organized into a series of natural sequences to make possible the development of the problem-solving attitude of mind, and to carry this series long enough really to give some facility and efficiency in thinking."